mograph was not disturbed during November and December.

Friday, November 25, at the following stations in Virginia: Bedford City, Bonair, Buckingham, Colmans Falls, Fredericksburg, Blacksburg, Burkes Garden, Grahams Forge, Lexington. On this date, November 25, shocks were also felt at the following places: Pulaski, Va., a slight shock, lasting half a minute, at 3:10 p. m.; Radford, Va., a distinct shock, lasting ten or twelve seconds, at 3:05; Wytheville, Va., alarming, twenty seconds duration, at 3:10; Roanoke, Va., plainly felt; Lynchburg, Va., duration fifteen or twenty seconds, at a few minutes past three; Danville, Va., duration five seconds, at 3:07; Norfolk, Va., two very slight shocks at a few minutes after three; Winston, N. C., distinct, at 3:10 p. m.; Franklinsville, N. C., very distinct, at 3:05 p. m.; Charlotte, N. C. distinct, at 3:10 p. m.; Oakvale, W. Va., very severe, lasting about twenty seconds, at 3:08 p. m.

Professor Marvin reports that the seismograph belonging to the Weather Bureau was moved from one room to an adjoining one during November, and was reinstalled apparently just at the right time to give a very satisfactory record of the earthquake of Friday, November 25. The instrument shows that the tremor reached Washington, D. C., at exactly 3 h., 10 m., 30 s., p. m., seventy-fifth meridian time. In addition to Professor Marvin's seismograph, the only other observation in Washington was made by Mrs. N. G. Sprague, No. 705 Mount Vernon Square, N. W., who reports, "A lounge rocked slightly at 3:10 p. m. for less than half a minute."

Mr. R. D. Buford, of the clerk's office, Bedford City, Va., reports through the Chief of the United States Geological Survey, an account of earth tremors on the farm of Mr. Henry Creasy, near Otter Hill, Bedford Co., which have continued almost constantly for more than a year. The tremors in the valley of New River were the subject of a special investigation by Mr. N. R. Campbell, of the Geological Survey, in 1897. His report will give all necessary information to those interested in the subject. These tremors apparently arise from the sliding of the stratified layers of rocks over each other; they are in a state of great strain, and are continually cracking and sliding; the individual motions are extremely small in the case of slight tremors, and only amount to a few feet in the case of the heaviest earthquake.

THE MOON AND THE WEATHER.

The Editor has been requested to remark upon some special ideas with regard to the relation of the moon to the weather.

A gentleman at Huntington, Ind., states, as a general observation, that—

> The position of the moon at new moon forecasts the temperature for the following lunar month. Thus, on June 18, 1898, the new moon occurred 25° farther north than on July 18, and much farther than on August 17. Has this northing any special relation to the weather?

The Editor must answer, "No." Every careful study of suspected relations between the moon and the weather has shown that there are none. The same lunar phenomenon that is said to produce cold or rain in one part of the world is said to produce just the opposite somewhere else. The moon is too cold to radiate much heat, so that all phenomena that involve heat must depend upon the sun. True, the moon has an attractive power and can cause tides in the ocean as important as those caused by the sun, but that has little to do with our atmosphere. The atmospheric tides have not yet been shown to be important.

UNEQUAL DISTRIBUTION OF SNOW.

Having noticed the marked discrepancy between the depth of snow at Plattsburg, N. Y., and adjacent stations, further information was solicited from section director, Mr. R. G. Allen, who states that—

> There has been no snow this season (up to December 19) at Plattsburg or along the Champlain Valley, except flurries, while west of Lake Champlain, say 15 miles, snow is from 12 to 20 inches in depth.

RECENT METEORS.

November.—The occurrence of the November shower of meteors seems to have tempted active newspaper correspondents to add their own unnecessary exaggerations to the great stories reported by the ship captains. Thus, Captain Gartel, of the bark *Quevilly*, which arrived at Philadelphia November 25, and sailed away a few days later, stated that on November 15 a huge meteor flashed out of the heavens and fell with a tremendous splash directly in the path of the vessel. The numerous other details published in the Philadelphia papers are generally considered to be the invention of the newspaper reporter. We should probably discredit the whole story had we not a similar report from Capt. H. C. McCallum, master of the barge *Masaba*, of the Minnesota Steamship Company. Over his own signature he writes from Two Harbors, Minn., to the Weather Bureau, as follows:

> I, with my second mate, wheelsman, and lookout, saw a meteor fall from the heavens Monday, about 11 o'clock p. m., November 14.
>
> We were about 20 miles east of Standard Rock, steering west, and this meteor was due west, or dead ahead when it fell. It was blowing a gale from the west-southwest at the time. It gave me quite a start and also a scare at the time; never saw anything like it before, and for my part never want to see one again. It was about the size of an oil barrel and lit up the heavens, it being white with colors on the edges.
>
> Captain Morgan of the *Marina* saw it; he was abreast of Copper Harbor, Mich., and it fell in the direction of Houghton, Mich., at about 11 o'clock, so it must have fallen somewhere in that vicinity, as we were 50 or 60 miles due east of Houghton and on a line with the fall of the meteor.

As there is nothing at all impossible in the fall of a meteor into the ocean or the Great Lakes, we may probably give credence to the two reports above quoted.

A report from Perry, Okla., to the effect that several meteors fell near that place about 11 o'clock p. m., November 13, proves to be entirely false. It is denounced with indignation by Oklahoma papers, and is reported to be untrue by our own section director. As the report was widely copied the Editor is obliged to warn students of meteorites against accepting it.

December 2.—On the morning of December 2, after daylight, a meteor one-fourth as large as the full moon, with a long scintillating train, the head being as bright as an arc light, was seen by many persons at Cumberland, Md. Mr. Howard Shriver states that it moved in a northerly direction and disappeared beyond the right-hand peak of the Narrows.

An equally remarkable meteor seems to have been seen elsewhere. A report comes from Randall, Kans. (39° 45′ N., 98° 2′ W.), to the effect that a huge meteorite fell on the evening of December 2, but further inquiry has failed to confirm this story.

The exact height and path of a bright meteor like this can only be determined when various observers note the apparent angular azimuth and altitude of at least two points in the path as seen by each. The two best points to observe are the end or disappearance of the meteor and the position when nearest the observer's zenith.

OPTICAL PHENOMENA.

Mr. Howard Shriver, of Cumberland, Md., describes a beautiful optical effect. He states that when the twigs of a tree are fine and close, the light from an electric arc lamp shining